

## PATENT COOPERATION TREATY

PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

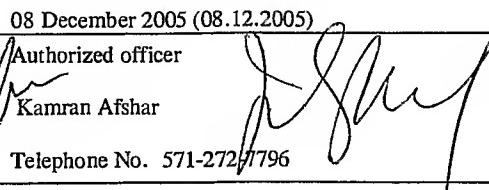
(Chapter II of the Patent Cooperation Treaty)

REC'D 19 JAN 2006

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(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 030036U2WO	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/US04/13203	International filing date (day/month/year) 30 April 2004 (30.04.2004)	Priority date (day/month/year) 05 April 2004 (05.04.2004)
International Patent Classification (IPC) or national classification and IPC IPC(7): G01S 5/02; H04B 7/20; and US Cl.: 455/ 11.1-13.2, 427, 456.1-456.6; 342/352-353, 357.01, 357.08, 357.09, 357.1, 357.12		
Applicant QUALCOMM INCORPORATED		
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>2</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of _____ sheets, as follows:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</li> <li><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</li> </ul> <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> <p>4. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Box No. I Basis of the report</li> <li><input type="checkbox"/> Box No. II Priority</li> <li><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li><input type="checkbox"/> Box No. IV Lack of unity of invention</li> <li><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li><input type="checkbox"/> Box No. VI Certain documents cited</li> <li><input checked="" type="checkbox"/> Box No. VII Certain defects in the international application</li> <li><input type="checkbox"/> Box No. VIII Certain observations on the international application</li> </ul>		
Date of submission of the demand 13 September 2005 (13.09.2005)	Date of completion of this report 08 December 2005 (08.12.2005)	
Name and mailing address of the IPEA/ US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Authorized officer  Kamran Afshar Telephone No. 571-272-7796	

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/US04/13203

## Box No. I Basis of the report

1. With regard to the language, this report is based on:
- the international application in the language in which it was filed.
  - a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
    - international search (under Rules 12.3 and 23.1(b))
    - publication of the international application (under Rule 12.4(a))
    - international preliminary examination (under Rules 55.2(a) and/or 55.3(a))
2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):
- the international application as originally filed/furnished
  - the description:
 

pages 1-16 \_\_\_\_\_ as originally filed/furnished  
 pages\* NONE received by this Authority on \_\_\_\_\_  
 pages\* NONE received by this Authority on \_\_\_\_\_
  - the claims:
 

pages 17-21 \_\_\_\_\_ as originally filed/furnished  
 pages\* NONE as amended (together with any statement) under Article 19  
 pages\* NONE received by this Authority on \_\_\_\_\_  
 pages\* NONE received by this Authority on \_\_\_\_\_
  - the drawings:
 

pages 1-6 \_\_\_\_\_ as originally filed/furnished  
 pages\* NONE received by this Authority on \_\_\_\_\_  
 pages\* NONE received by this Authority on \_\_\_\_\_
  - a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.
3.  The amendments have resulted in the cancellation of:
- the description, pages\_\_\_\_\_
  - the claims, Nos.\_\_\_\_\_
  - the drawings, sheets/figs\_\_\_\_\_
  - the sequence listing (*specify*):\_\_\_\_\_
  - any table(s) related to the sequence listing (*specify*):\_\_\_\_\_
4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- the description, pages\_\_\_\_\_
  - the claims, Nos.\_\_\_\_\_
  - the drawings, sheets/figs\_\_\_\_\_
  - the sequence listing (*specify*):\_\_\_\_\_
  - any table(s) related to the sequence listing (*specify*):\_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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## Box No. IV Lack of unity of invention

1.  In response to the invitation to restrict or pay additional fees the applicant has, within the applicable time limit:
  - restricted the claims.
  - paid additional fees.
  - paid additional fees under protest, and, where applicable, the protest fee
  - paid additional fees under protest but the applicable protest fee was not paid
  - neither restricted the claims nor paid additional fees
2.  This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is:
  - complied with.
  - not complied with for the following reasons:
4. Consequently, this report has been established in respect of the following parts of the international application:
  - all parts
  - the parts relating to claims Nos. \_\_\_\_\_

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
PCT/US04/13203**Box No. V** Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)

Claims NONE YESClaims 1-28 NO

Inventive Step (IS)

Claims NONE YESClaims 1-28 NO

Industrial Applicability (IA)

Claims 1-28 YESClaims NONE NO

## 2. Citations and Explanations (Rule 70.7)

Please See Continuation Sheet

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

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**Box No. VII Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

Examiner acknowledges that the lists of defects as shown below in items 1-2 were corrected by replacement sheet, which was submitted on 12 August 2004.

Claims 1-18, 20-29 are objected to because of the following informalities: claim 19 is missing and / or numbering of claims are out of sequence. PCT Rule 6.1 (b) requires if there are several claims, they shall be numbered consecutively in Arabic numeral. Appropriate correction is required.

Claim 29 is objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because claim 29 indefinite for the following reason(s): claim 29 is depended on itself and is unclear what that claim invention stands for.

## Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

**V. 2. Citations and Explanations:**

Applicant should submit an argument under the heading "Remarks" pointing out disagreements with the examiner's contentions. Applicant must also discuss the references applied against the claims, explaining how the claims avoid the references or distinguish from them. Thereby, due to the lack of Applicant's argument, Examiner holds the previous rejection.

Claims 1-28 lack novelty under PCT Article 33(2) as being anticipated by Amerga (US 2002/0115448 A1).

With respect to claim 1, Amerga discloses a repeater of a wireless communication system (See e.g. 130, 120, 124a-124c, 104a-104c, 114a-114c of Fig. 1, Page 2, Paragraphs [0032]-[0035]) comprising: repeating circuitry to receive a signal sent from a first device in the wireless communication system and repeat the signal to a second device in the wireless communication system (See e.g. Page 5, Paragraphs [0064]-[0065]); and a positioning unit to receive; positioning signals and calculate a position of the repeater based on the positioning signals (See e.g. Page 5, Paragraphs [0064]-[0065]) / indicative of a location of the repeater (See e.g. Page 6, Paragraph [0080]).

Regarding claim 2, Amerga discloses the positioning signals comprise satellite positioning signals received from positioning satellites and the positioning unit comprises a global positioning system (GPS) receiver (See e.g. Page 8, Paragraphs [0101]-[0104], Page 11, Paragraphs [0135]-[0137]).

Regarding claim 3, Amerga discloses the repeater receives the signal from the first device via a physical transmission line and repeats the signal to the second device via a wireless link (See e.g. Page 6, Paragraph [0075]).

Regarding claim 4, Amerga discloses the repeater receives the signal from the first device via a physical transmission line and repeats the signal to the second device via a wireless link (See e.g. Page 6, Paragraph [0075]).

Regarding claim 6, Amerga discloses receiving information indicative of signals detected by a subscriber unit of the wireless communication system; and generating position assistance information based on the positioning information received from the repeater and the information indicative of signals detected by the subscriber unit (See e.g. Page 6, Paragraph [0080]-[0082]).

## Supplemental Box

Regarding claim 7, Amerga discloses sending the position assistance information to the subscriber unit (See e.g. Page 9, Paragraph {0108}).

Regarding claim 8, Amerga discloses the position assistance information identifies a set of positioning system satellites (See e.g. 124a-124c of Fig. 1) that are in view to the subscriber unit (See e.g. Page 6, Paragraph [0080]-[0082]).

Regarding claim 9, Amerga discloses the information indicative of signals detected by the subscriber unit includes phase offsets, and the signals are associated with base stations of the wireless communication system (See e.g. Page 2, Paragraph [0036], Page 3, Paragraph [0042]).

Regarding claim 10, Amerga discloses receiving positioning information for a receiving device; receiving positioning information for a sending device; receiving observed information indicative of signals sent from the sending device to the receiving device (See e.g. Page 5, Paragraphs [0064]-[0065]); and calculating a repeater delay for signals sent from the sending device to the receiving device through the repeater based on the positioning information for the repeater, the positioning information for the receiving device, the positioning information for the sending device, and the observed information (See e.g. Page 5, Paragraph [0071] - Page 6, Paragraph [0074]).

Regarding claim 11, Amerga discloses identifying a predicted delay based on distances between the sending device and the repeater and the repeater and the receiving device; identifying an observed delay from the observed information; and calculating the repeater delay as a difference between the observed delay and the predicted delay (See e.g. Page 6, Paragraphs [0076]-[0081]).

Regarding claim 12 Amerga discloses identifying the observed delay includes identifying from the observed information a phase offset of pilot symbols relative to system time associated with the wireless communication system (See e.g. Page 6, Paragraphs [0076]-[0081]).

Regarding claim 13 Amerga discloses a receiver to receive positioning information for a repeater of a wireless communication system indicative of a location of the repeater and to receive information indicative of signals detected by the repeater and the information indicative of signals detected by the subscriber unit (See e.g. Page 6, Paragraphs [0080]-[0081], Page 11, Paragraphs [0135]-[0136]).

Regarding claim 14 Amerga discloses a transmitter to send the position assistance information to the subscriber unit (See e.g. Page 6, Paragraphs [0080]-[0081], Page 11, Paragraphs [0135]-[0136]).

Regarding claim 15 Amerga discloses the position assistance information identifies a set of positioning system satellites that are in view to the subscriber unit (See e.g. Page 6, Paragraphs [0080]-[0081], Page 11, Paragraphs [0135]-[0136]).

Regarding claim 16 Amerga discloses the information indicative of signals detected by the subscriber unit includes phase offsets, wherein the signals are associated with base stations of the wireless communication system (See e.g. Page 6, Paragraphs [0080]-[0081], Page 11, Paragraphs [0135]-[0136]).

With respect to claim 17, Amerga discloses device of a wireless communication system comprising: a receiver to receive positioning information indicative of locations of a repeater, a base station and a subscriber unit of a wireless communication system (See e.g. 130, 120, 124a-124c, 104a-104c, 114a-114c of Fig. 1, Page 2, Paragraphs [0032]-[0035]), and to receive observed information indicative of signals sent from the base station to the subscriber unit through the repeater; and a control unit (See e.g. 120 of Fig. 1, 1630 of Fig. 16, 1710 of Fig. 17) to calculate a repeater delay for signals sent from the base station to the subscriber unit through the repeater based on the positioning information (See e.g. Page 5, Paragraphs [0064]-[0065]), and the observed information indicative of signals sent from the base station to the subscriber unit through the repeater (See e.g. Page 6, Paragraph [0080]).

Regarding claim 18 Amerga discloses the control unit calculates the repeater delay by identifying a predicted delay based on distances between the base station and the repeater and the repeater and the subscriber unit, identifying an observed delay from the observed information, and calculating the repeater delay as a difference between the observed delay and the predicted delay (See e.g. Page 6, Paragraphs [0076]-[0081]).

Regarding claim 19 Amerga discloses identifying the observed delay includes identifying from the observed information a phase offset (See e.g. Page 2, Paragraph [0036], Page 3, Paragraph [0042]) of pilot symbols relative to system time based on information sent from the subscriber unit indicative of signals sent from the base station to the subscriber unit through the repeater (See e.g. Page 6, Paragraphs [0076]-[0081]).

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**International application No.  
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With respect to claim 20, Amerga discloses computer-readable medium (See e.g. Page 11, Paragraph [0137]) comprising instructions that when executed in a position determination entity (PDE) of a wireless communication system cause the PDE (See e.g. 130 of Fig. 17) to generate position assistance information based or, positioning information indicative of a location of the repeater and information indicative of signals detected by the subscriber unit (See e.g. Page 11, Paragraphs [0135]-[0139]).

Regarding claim 21 Amerga discloses instructions that when executed cause the PDE to send the position assistance information to the subscriber unit (See e.g. Page 9, Paragraph {0108}).

Regarding claim 22 Amerga discloses the position assistance information identifies a set of positioning system satellites that are in view to the subscriber unit (See e.g. 124a-124c of Fig. 1, Page 6, Paragraph [0080]-[0082]).

Regarding claim 23 Amerga discloses the information indicative of signals detected by the subscriber unit includes phase offsets, wherein the signals are associated with base stations of the wireless communication system (See e.g. Page 2, Paragraph [0036], Page 3, Paragraph [0042]).

With respect to claim 24, Amerga discloses a computer-readable medium comprising instructions that when executed in a device medium (See e.g. Page 11, Paragraph [0137]) of a wireless communication system cause the device to calculate a repeater delay for signals sent from a base station to a subscriber unit through a repeater based at least in part on positioning information associated with the repeater, the base station and the subscriber unit, and observed information indicative of signals sent from the base station to the subscriber unit through the repeater (See e.g. Page 11, Paragraphs [0135]-[0139]).

Regarding claim 25 Amerga discloses identifying a predicted delay based on distances between the base station and the repeater and the repeater and the subscriber unit; identifying an observed delay from the observed information; and calculating the repeater delay as a difference between the observed delay and the predicted delay (See e.g. Page 6, Paragraphs [0076]-[0081]).

Regarding claim 26 Amerga discloses identifying the observed delay includes identifying from the observed information a phase offset of pilot symbols relative to system time associated with the wireless communication system (See e.g. Page 6, Paragraphs [0076]-[0081]).

With respect to claim 27, Amerga discloses a repeater of a wireless communication system (See e.g. 130, 120, 124a-124c, 104a-104c, 114a-114c of Fig. 1, Page 2, Paragraphs [0032]-[0035]) comprising: means for receiving a signal sent from a first device in the wireless communication system (See e.g. Page 5, Paragraphs [0064]-[0065]); and means for repeating the signal to a second device in the wireless communication system; means for receiving positioning signals; and means for calculating a position of the repeater based on the positioning signals (See e.g. Page 6, Paragraphs [0076]-[0081]).

Regarding claim 28, Amerga discloses means for sending information indicative of the position of the repeater to another device (See e.g. Page 6, Paragraphs [0076]-[0081]).

**----- NEW CITATIONS -----**